

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Application No. : 10/511,328
Applicants : Jan Thorsoe et al.
Filed : October 15, 2004
TC/A.U. : 2838
Examiner : Alexis Asiedua Boateng
Title : Charge control circuit for a battery pack comprising
rechargeable battery elements
Docket No. : 2923-663
Customer No. : 6449

PRE-APPEAL BRIEF REQUEST FOR REVIEW

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Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

The Applicants hereby request a pre-appeal brief review of the final rejections to the claims in the above-identified application. This Request is being submitted in response to the Office Action mailed May 22, 2007 and the Advisory Action mailed September 10, 2007. The reasons for the request are set forth in the attached Set of Arguments For Which Review Has Been Requested.

Applicants submit herewith a Notice of Appeal and Petition for Extension of Time and the required fees. In the event that any additional fees may be due with respect to this paper, such fees may be charged to Counsel's Deposit Account No. 02-2135.

Respectfully submitted,

Date: 11-15-07

By



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SET OF ARGUMENTS FOR WHICH REVIEW HAS BEEN REQUESTED

Applicants appeal from the rejections of claims 2-10 and 12-19. See Advisory Action dated September 10, 2007; Final Office Action dated May 22, 2007 (“Final Office Action”). In particular, independent claims 16 and 17 and dependent claims 2, 3, 10, 12-15, 18, and 19 were rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Pat. No. 6,051,955 to Saeki et al. Final Office Action at 2-6. Also, dependent claims 4-9 were rejected under 35 U.S.C. § 103(a) as being unpatentable by reason of obviousness over Saeki in view of U.S. Pat. No. 5,990,664 to Rahman. Final Office Action at 7-8. Applicants filed a Request for Reconsideration on August 22, 2007 (“Request for Reconsideration”) setting forth arguments and pointing to evidence that prove the patentability of claims 2-10 and 12-19. The Request for Reconsideration was entered for the purposes of appeal. Advisory Action dated September 10, 2007.

Pre-appeal brief review is appropriate in this case because the Examiner made a clear error when evaluating the claims of the application and the disclosure of the primary cited prior art reference, Saeki, and further because the Final Office Action set forth statements that are inconsistent with the rejections made. The Applicants’ reasons for review are not based in mere interpretations of the claims or prior art, but instead are based in law and fact.

Review is specifically sought for the following reasons:

- independent claim 16 and dependent claims 2, 3, 10, 14, 15, and 19 are not anticipated because, as the evidence proves, Saeki fails to disclose that only the relevant parallel branch of the battery is blocked or released on the basis of the battery state, as recited by each of these claims;
- independent claim 17 and dependent claims 12, 13, and 18 are not anticipated because, as the evidence proves, Saeki fails to disclose that only the respective parallel branch is selectively blocked or left open for the flow of charge by a state monitoring means, as recited by each of these claims; and
- the subject matter of claims 4-9 would not have been obvious because neither Saeki nor Rahman, alone or in combination, disclose or suggest, or otherwise would have made obvious the above-noted limitations of claim 16, from which claims 4-9 depend either directly or through an intermediate claim.

As a result of the above-identified errors, all claim rejections should be withdrawn and claims 2-10 and 12-19 should be allowed. While detailed reasons the rejections should be withdrawn are set forth in the Request for Reconsideration and the Response filed March 5, 2007 ("Mar. 5 Response"), further details are provided below along with specific citations to record.

I. The Rejection of Claims 2-3, 10-12, 14-19 as Being Anticipated by Saeki is Improper

Despite clear evidence to the contrary, the Examiner maintained the rejection of claims 2-3, 10-12, and 14-19 as anticipated by Saeki. To anticipate a patent claim, every element and limitation of the claimed invention must be found in a single prior art reference, and must be arranged as recited in the contested claim. Brown v. 3M, 265 F.3d 1349, 1351 (Fed. Cir. 2001). The rejection of claims 2-3, 10-12, and 14-19 is improper because Saeki fails to disclose every element and limitation of the claims.

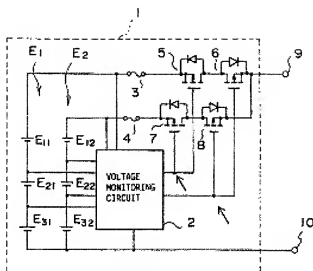
Independent claims 16 and 17 define a charging and discharging circuit having similar features and are addressed separately below.

A. The Rejection of Claims 2-3, 10, 14-16 and 19

Claim 16, upon which claims 2-3, 10, 14-15, and 19 depend, recites a charge control circuit for a battery pack, which includes rechargeable battery elements (9) arranged in respective parallel branches (3) of a parallel circuit of battery voltage sources. State monitoring means (11, 13, 17) monitor the battery state of battery elements (9); control switches (15) interrupt or release current flow. Each parallel branch (3) has associated state monitoring means (11, 13, 17), and a respective switch (15) is provided in each parallel branch (3). The respective switch (15) can be controlled on the basis of the battery state, which is monitored by the state monitoring means (11, 13, 17), of the relevant parallel branch (3), in order to selectively block or release only this relevant parallel branch (3) for the current flow. Request for Reconsideration at 2; Mar. 5 Response at 8-11.

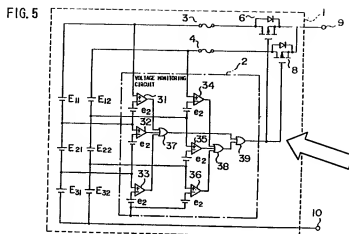
In support of the rejections, the Examiner pointed to certain portions of Saeki, including Fig. 3. The Examiner clearly erred when asserting that Saeki discloses the selective blocking or releasing of only a relevant parallel branch, as required by the claims. Applicants pointed out this error in its Request for Reconsideration, which was entered but ignored. In fact, Applicants provided the following figure in its Request for Reconsideration that illustrates the error.

FIG. 3



Request for Reconsideration at 4. This figure illustrates that the device in Saeki is incapable of performing the claimed feature relating to the selective blocking or releasing of only a relevant parallel branch. As highlighted by the arrows, switches 5 and 7, and 6 and 8, are respectively coupled so that switch 5 cannot be actuated separately from switch 7 and likewise, switches 6 and 8 must be actuated together. Request for Reconsideration at 4-5. There can be no other way of reading this figure and the mistake is not one of mere interpretation.

Applicants also pointed out that Saeki discloses in each of its embodiments, that the gates of one or more P-channel Field Effect Transistors (FETs) are wired together in a single node driven by a single OR gate to disable a current flow (either an inflow or an outflow) for the entire battery on the basis of an out-of-limit voltage condition within the battery. Request for Reconsideration at 3-4. Such node is also clearly shown in Fig. 5 of Saeki (shown below, block arrow pointing to such node added), which illustrates the embodiment being described in the portion of the description cited by the Examiner (col. 6, lines 48-64). Advisory Action dated September 10, 2007 at continuation page.



As already submitted by Applicants, it is impossible for the voltage monitoring circuit to cause FET 6 to switch independently of FET 8. Because FETs 6 and 8 only switch together, the logic level of OR gate 39 determines whether or not the entire battery will be disconnected at the FETs¹. In fact, it was conceded in the Final Office Action that “[t]he complete battery pack is disconnected as the FETs are turned off.” Final Office Action at 8, para. 5 (emphasis added) (contradicting Examiner’s previous sentence stating that “the FETs are turned off to selectively interrupt or release only one respective parallel branch”).

Therefore, because Sacki fails to teach or disclose that only a relevant parallel branch of the battery may be blocked or released, the rejection of claim 16 and dependent claims 2, 3, 10, 14, 15, and 19 is improper. There simply is no evidence in the record to support the rejections, and Applicants request that the rejections to claims 2-3, 10, 14-16 and 19 be withdrawn.

B. The Rejection of Claims 12, 13, 17, and 18

Claim 17, upon which claims 12-13 and 18 depend, recites a discharge control circuit for a battery pack having rechargeable battery elements (9), which are arranged in respective parallel branches of a parallel circuit of battery voltage sources (3). The discharge control circuit includes state monitoring means (11, 13, 17) and switches (15), which can be controlled by the state monitoring means, for interrupting the current flow or releasing the current flow. Each parallel branch includes, in series with the battery voltage source (3) having one or more battery elements (9) represented by it, a respective controllable switch (15) having an integrated diode (23), or one which

¹ See also, Sacki col. 6, lines 53-58 (59-63) (“if the voltage of one of the battery cells E11, E21, and E31 (E12, E22 and E32) becomes greater than or equal to the reference voltage e2, a high-level signal is applied to the FETs 6 and 8 via the OR circuits 37 (38) and 39 to turn the FETs 6 and 8 OFF, so as to cut off the charging current to the battery unit 1”).

is connected in parallel therewith, which is conductive in the discharge current flow direction. The state monitoring means (13) switches the controllable switch (15) of a respective parallel branch from a high-resistance state to a low-resistance state when a discharge current, having a minimum current level, flows through the diode (23) associated with the switch (15), such that only the respective parallel branch is selectively blocked or left open for the flow of charge. Saeki fails to disclose each and every feature of claim 17. See Request for Reconsideration at 2-3; Mar. 5 Response at 11-13.

As described above in Section I.A, the evidence of record demonstrates that Saeki fails to disclose or suggest that only a respective parallel branch is selectively blocked or left open for the flow of charge by a state monitoring means. See also, Mar. 5 Response at 12. In Saeki, the gates of one or more P-channel FETs are wired together in a single node driven by a single OR gate to disable a current flow for the entire battery on the basis of an out-of-limit voltage condition within the battery. Mar. 5 Response at 13-14. Furthermore, it was conceded in the Office Action that “[t]he complete battery pack is disconnected as the FETs are turned off.” Final Office Action at 8, para. 5 (emphasis added.) Therefore, because Saeki fails to disclose that only a respective parallel branch is selectively blocked or left open for the flow of charge, the rejection of independent claim 17 and dependent claims 12, 13, and 18 is improper. There simply is no evidence in the record to support the rejections, and Applicants request that the rejections to claims 12-13 and 17-18 be withdrawn.

II. The Rejection of Claims 4-9 as Being Obvious in View of the Combination of Saeki and Rahman is improper

Claims 4-9 depend from claim 16 and are patentable over Saeki for at least the same reasons described above. Request for Reconsideration at 5. Rahman fails to cure the above-described deficiencies of Saeki and, as a result, the rejections of claims 4-9 are improper. Id. Therefore Applicants request that the rejections to claims 4-9 be withdrawn.

III. Conclusion

For the foregoing reasons, the pre-appeal brief review is appropriate and each of the rejections from which appeal has been made should be withdrawn now because of the clear errors. There simply is no evidence in the record to support the rejections. Accordingly, this application should not proceed to appeal and claims 2-10 and 12-19 should be allowed.